

AMENDMENTS TO THE CLAIMS

1. (currently amended) A visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield, the visual display system comprising:

a display light source that transmits an image in at least partially polarized light;
and

a combiner positioned between the occupant and the windshield that transmits light from a field of vision ~~behind the combiner~~ external to the vehicle to a viewer in front of the combiner the occupant, the combiner

reflecting a first portion of the display light to superimpose the image as a virtual image within the transmitted field of vision,

rotating the polarization of a second portion of the display light, and

transmitting the second portion of the display light through the windshield, the second portion of the light ~~therefore~~ having low efficiency for reflection towards the viewer from windshield-related optical boundaries encountered by the second portion of the display light following rotation of the plane of polarization of the display light and transmission by the combiner.

2. (original) The visual display system of claim 1 wherein the light is *s*-polarized, and the polarization of the light is rotated by the combiner to produce *p*-polarized light.

3. (original) The visual display system of claim 1 wherein the combiner consists of a birefringent material.

4. (original) The visual display system of claim 1 wherein the combiner is coated with a birefringent film.

5. (original) The visual display system of claim 1 wherein the combiner is coated with a dielectric film.

6. (original) The visual display system of claim 1 wherein the combiner is coated with a metallic film.

7. (original) The visual display system of claim 1 used in a head-up display, providing a primary virtual image of an automotive gauge with only attenuated ghost images.

8. (original) The visual display system of claim 1 used in a head-up display, providing a primary virtual image of an automotive gauge with no ghost images.

9. (currently amended) The visual display system of claim 1 used in an application selected from among:

~~a speech prompt display;~~

a see-through projection display; and
a head-up display in a vehicle.

10. (original) The visual display system of claim 1 further including a relay optic that rotates the polarization of the reflected, first portion of the light.

11. (original) The visual display system of claim 10 used in a head-up display to allow a viewer to wear *p*-polarized sunglasses.

12. (original) The visual display system wherein the display light source is selected from among:

- a display projection system utilizing a light guide, diffuser, liquid crystal display, and transmitting window;
- a vacuum fluorescent display;
- a laser or light emitting diode combined with a scanning mirror;
- a laser or light emitting diode combined with a number of lasers, LEDs, and scanning mirrors;
- a laser or LED combined with scanning lenses; and
- an array of LEDs that together compose a graphical or textual display.

13. (currently amended) A visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield, the visual display system comprising:

a display light source that transmits an image in an at least partially *p*-polarized light; and

a combiner, coated with a metallic coating, positioned between the occupant and the windshield that transmits light from a field of vision ~~behind the combiner~~ external to the vehicle to a viewer in front of the combiner the occupant, the combiner

reflecting a first portion of the display light to superimpose the image as a virtual image within the transmitted field of vision, and

transmitting [the] a second portion of the display light, the second portion of the display light having low efficiency for reflection towards the viewer from optical boundaries encountered by the second portion of the display light following transmission into the combiner.

14. (original) The visual display system of claim 11 used in a head-up display to allow a viewer to wear *p*-polarized sunglasses.

15. (currently amended) A method for superimposing a virtual image [within] onto a field of vision of an occupant of a vehicle that includes a windshield, the method comprising:

transmitting an image in an at least partially polarized light from a display light source to a combiner positioned between the occupant and the windshield that transmits light from a field of vision external to the vehicle to the occupant, the combiner

reflecting a first portion of the display light to superimpose the image as a virtual image within the transmitted field of vision,

rotating the polarization of a second portion of the display light, and
transmitting the second portion of the display light through the windshield,
the second portion of the light [therefore] having low efficiency for reflection towards the
viewer from windshield-related optical boundaries encountered by the second portion of
the display light following rotation of the plane of polarization of the display light and
transmission by the combiner.

;

~~transmitting light from a field of vision behind a combiner to a viewer in front of
the combiner;~~

~~reflecting a first portion of the light from the combiner to superimpose the image
as a virtual image within the transmitted field of vision;~~

~~rotating the polarization of a second portion of the light within the combiner; and~~

~~transmitting the second portion of the light through the combiner.~~

16. (original) The method of claim 14 employed to provide a head-up display.

17. (original) The method of claim 14 employed to provide a see-through display projector.

18. cancel

19. (new) The visual display system of claim 1 wherein the combiner is coated with both a dielectric film and a metallic film.

20. (new) The visual display system of claim 1 wherein the combiner is applied to an inner surface of the windshield.

21. (new) A visual display system that superimposes a virtual image onto a field of vision of an occupant of a vehicle that includes a windshield, the visual display system comprising:

a display light source that transmits an image in at least partially polarized light;

a combiner that transmits light from a field of vision external to the vehicle to the occupant, the combiner

reflecting a first portion of the display light to superimpose the image as a virtual image within the transmitted field of vision,

rotating the polarization of a second portion of the display light, and

transmitting the second portion of the display light through the windshield, the second portion of the light having low efficiency for reflection towards the viewer from windshield-related optical boundaries encountered by the second portion of the display light following rotation of the plane of polarization of the display light and transmission by the combiner; and

a relay optic that rotates the polarization of the reflected, first portion of the display light to direct *p*-polarized light to the vehicle occupant.